Congratulations! You passed!

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1. Which of the following do you agree with? 1 / 1 point

- Face recognition requires comparing pictures against one person's face.
- Face verification requires K comparisons of a person's face.
- (selected) Face recognition requires K comparisons of a person's face.

Expand

Correct
Correct, in face recognition we compare the face of one person to K to classify the face as one of those K or not.

2. Why is the face verification problem considered a one-shot learning problem? Choose the best answer. 1 / 1 point

- Because we are trying to compare to one specific person only.
- (selected) Because we might have only one example of the person we want to verify.
- Because of the sensitive nature of the problem, we won't have a chance to correct it if the network makes a mistake.
- Because we have only have to forward pass the image one time through our neural network for verification.

Expand

Correct
Correct. One-shot learning refers to the amount of data we have to solve a task.

3. You want to build a system that receives a person's face picture and determines if the person is inside a workgroup. You have pictures of all the faces of the people currently in the workgroup, but some members might leave, and some new members might be added. To train a system to solve this problem using the triplet loss you must collect pictures of different faces from only the current members of the team. True/False? 1 / 1 point

- True
- (selected) False

Expand

Correct
Correct. Although it is necessary to have several pictures of the same person, it is not absolutely necessary that all the pictures only come from current members of the team.

4. In the triplet loss: 1 / 1 point

$$\max\left(\|f(A)-f(P)\|^2-\|f(A)-f(N)\|^2+\alpha,0\right)$$

Which of the following are true about the triplet loss? Choose all that apply.

- (selected) $f(A)$ represents the encoding of the Anchor.

Correct
Correct. f represents the network that is in charge of creating the encoding of the images, and A represents the anchor image.

- (selected) We want that I so the negative images are further away from the anchor than the positive images.

Correct
Correct. Being a positive image the encoding of P should be close to the encoding of A.

α

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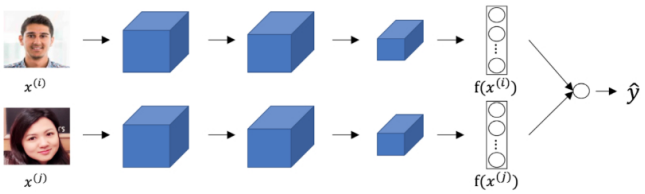
$$A$$ the anchor image is a hyperparameter of the Siamese network

Expand

Correct
Great, you got all the right answers.

5. Consider the following Siamese network architecture: 1 / 1 point



The upper and lower neural networks have different input images, but have exactly the same parameters.

- (•) True
- ( ) False

Expand

Correct
Yes it is true, parameters are shared among these two networks.

6. You train a ConvNet on a dataset with 100 different classes. You wonder if you can find a hidden unit which responds strongly to pictures of cats. (I.e., a neuron so that, of all the input/training images that strongly activate that neuron, the majority are cat pictures.) You are more likely to find this unit in layer 4 of the network than in layer 1. 1 / 1 point

- (•) True
- ( ) False

Expand

Correct
Yes, this neuron understands complex shapes (cat pictures) so it is more likely to be in a deeper layer than in the first layer.

7. Neural style transfer is trained as a supervised learning task in which the goal is to input two images (x), and train a network to output a new, synthesized image (y). 1 / 1 point

- ( ) True
- (•) False

Expand

Correct
Yes, Neural style transfer is about training the pixels of an image to make it look artistic, it is not learning any parameters.

8. In the deeper layers of a ConvNet, each channel corresponds to a different feature detector. The style matrix $G^{[l]}$ measures the degree to which the activations of different feature detectors in layer l vary (or correlate) together with each other. 1 / 1 point

- ( ) False
- (•) True

Expand

Correct
Yes, the style matrix $G^{[l]}$ can be seen as a matrix of cross-correlations between the different feature detectors.

9. In neural style transfer, what is updated in each iteration of the optimization algorithm? **1 / 1 point**

- The neural network parameters
- The pixel values of the content image C
- The regularization parameters
- The pixel values of the generated image G

Expand

Correct
Yes, neural style transfer is different from many of the algorithms you've seen up to now, because it doesn't learn any parameters; instead it learns directly the pixels of an image.

10. You are working with 3D data. The input "image" has size $64 \times 64 \times 64 \times 3$, if you apply a convolutional layer with 16 filters of size $4 \times 4 \times 4$, zero padding and stride 2. What is the size of the output volume? **0 / 1 point**

- $31 \times 31 \times 31 \times 16$.
- $61 \times 61 \times 61 \times 14$.
- $31 \times 31 \times 31 \times 3$.
- $64 \times 64 \times 64 \times 3$.

Expand

Incorrect
No, use the formula $\lfloor \frac{n^{[l-1]} - f + 2 \times p}{s} \rfloor + 1 = n^{[l]}$ over the three first dimensions of the input data.